



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of
Hisashi ISAKA
Serial No. 10/067,369
Filed: February 7, 2002
For: CURING COMPOSITION

Group Art Unit 1712
Examiner: Robert Sellers

DECLARATION UNDER RULE 1.132

Honorable Commissioner of
Patent and Trademarks
Washington, D.C.

Sir:

I, Hisashi Isaka, hereby declare as follows:

That I graduated, in March 1986, at Hiroshima University, Department of Engineering, Course of Applied Chemistry;

That, in April of the same year, I joined Kansai Paint Co., Ltd., as a research chemist;

That, from April of 1986 to March of 2002, I engaged mainly in the research and development of aqueous resin for paint at the Technical Institute of the same company, and, from April of 2002 to March of 2003, in the research and development of fine particles of resin at the AT Institute of the same company, and, from April of 2003 up to now, in the research and development of the dispersion of pigment at the CD Institute of the same company;

That I am a sole inventor of U.S. Application Serial No. 10/067,369;

That the following experiments were carried out by myself, or under my supervision and control.

EXPERIMENT

1. Curing compositions A-1, A-2 and A-4 which are mentioned in Table 1 at page 22 of the present specification were subjected to an additional experiment of pot life, gel ratio and coloring caused by storage. The process of the experiment was as follows:

Pot life:

Samples of the above-mentioned curing compositions, each in an amount of 100 cc, were put in a glass bottle, which was then sealed and stored in a dark place at 20°C. The samples were each observed one day after, and three days after. Gelatinized sample is marked with \bigcirc , and non-gelatinized one with \times , in the following table.

Gel ratio after storage at room temperature for 100 days:

Samples of the above-mentioned curing compositions were each put in a glass bottle, which was then sealed and stored in a dark place at 20°C for 100 days. According to the method for testing gel ratio as mentioned at page 25 of the present specification, a coating film of each sample which had been baked at 140°C for 30 minutes was measured for gel ratio.

Coloring of coating film after storage:

Samples of the above-mentioned curing compositions, each in an amount of 100 cc, were put in a glass bottle, which was then sealed and stored in a dark place at 20°C. From each sample, a coating film was prepared after one day, and after 100 days, by baking at 140°C for 30 minutes according to the method for testing of the coloring of coating film as mentioned at page 25 of the present specification, and, thus, the coloring of coating film was evaluated.

Incidentally, Knoop hardness was tested according to the method as mentioned at page 25 of the present specification.

Results are shown in Table A below.

Table A

Non-aqueous system

Curing composition		A-1	A-2	A-4
Celoxide 2021P		300	300	300
Zn(OTf) ₂		3	1.5	
Yb(OTf) ₃				3
Propylene glycol monomethyl ether		3	3	3
Gel ratio (%)	Baking at 100°C	100	100	100
	at 120°C	99	100	99
	at 140°C	98	98	99
Knoop hardness (KHN)	at 100°C	35	35	36
	at 120°C	36	35	34
	at 140°C	35	36	35
Pot life (gelation)	One day after	○	○	×
	Three days after	×	○	×
Coloring of coating film (coating film baked at 140°C)	After one-day storage	None	None	Slightly colored
	After 100-day storage	None	None	Colored

Note: Curing composition A-4 was immediately before gelatinized when used for this experiment.

2. Curing compositions A-15, A-16, A-17, A-19, A-20 and A-21 which are mentioned in Table 2 at page 26 of the present specification were subjected to additional experiment of gel ratio after 100-day storage at room temperature and of the degree of coloring of baked coating film after three-day storage.

Results are shown in Table B below.

Table B

Non-aqueous system

Curing composition	A·15	A·16	A·17	A·19	A·20	A·21
Celoxide 2021P	100	100	100	100	100	100
Zn(OTf) ₂	0.5	1.0	0.2			
Yb(OTf) ₃				0.5	1.0	0.2
Acrylic suspension stabilizer solution (c)	10	10	10	10	10	10
Newcol 504 (25)		4				
Deionized water	37	35	37	37	62	37
Gel ratio (%)	100°C	75	100	0	80	100
	120°C	100	100	97	100	100
	140°C	100	99	100	100	100
Knoop hardness (KHN)	140°C	35	36	34	35	36
Coloring of coating film	140°C	None	None	None	None	None
Gel ratio (%) after 100-day storage at room temperature	140°C	99	100	97	99	100
Coloring of baked coating film (coating film baked at 140°C)	Applied and baked after three-day storage	None	None	None	Colored	Colored

The undersigned declarant declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application of any patent issuing thereon.

Signed this 23 day of January, 2004

Hisashi Isaka
Hisashi Isaka